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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/729,814

Applicant(s)

BATRA ET AL.

Examiner

PETER CHOI

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-15 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. The following is a **FINAL** office action upon examination of application number 10/729,814. Claims 1-15 are pending in the application and have been examined on the merits discussed below.

Response to Amendment

2. The amendment filed March 4, 2009 amended claims 1-7.
3. The previous rejection of claims 1-5 raised under 35 USC 101 are withdrawn in view of the claim amendments in the response filed March 4, 2009.
4. The previous rejection of claims 1-15 raised under 35 USC 112, 1st paragraph, is partially withdrawn in view of the Applicant's disclosure that the term "critical information" is in alignment with the definition used by the Department of Defense, which is within the level of one of ordinary skill in the art.

Response to Arguments

5. Applicant's arguments filed March 4, 2009 have been fully considered but they are not persuasive.

Applicant argues that Patrick and Muehlen are non-patent literature reference and therefore are not assumed to be enabling.

The Examiner respectfully disagrees. As per MPEP 2121.01,

"A reference contains an "enabling disclosure" if the public was in possession of the claimed invention before the date of the invention. "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985)."

Further, as per MPEP 2121.01(II),

"Even if a reference discloses an inoperative device, it is prior art for all that it teaches." *Beckman Instruments v. LKB Produkter AB*, 892 F.2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed. Cir. 1989). Therefore, "a non-enabling reference may qualify as prior art for the purpose of determining obviousness under **35 U.S.C. 103**." *Symbol Techs. Inc. v. Opticon Inc.*, 935 F.2d 1569, 1578, 19 USPQ2d 1241, 1247 (Fed. Cir. 1991).

Thus, the Applicant's arguments are incorrect, and the Patrick and Muehlen references qualify as prior art for the purpose of determining obviousness and contain an "enabling disclosure" as defined by MPEP 2121.01.

Applicant argues that the previous rejection failed to explain how the Chan-Patrick combination could select anything "for which the exposure measure is calculated to be a minimum.

The Examiner respectfully disagrees. As cited in the previous rejection, Patrick assigns tasks to agents under the principle of least privilege, minimizing the number of privileges granted to each agent (i.e., minimizing exposure). Patrick teaches that it is possible to derive a feasible assignment of agents to tasks given a set of agents who are capable of performing given tasks, the assignment catering to many goals, such as

guaranteed completion of all tasks and minimizing SRF [page 77]. Patrick further teaches generating a plurality of assignments using an algorithm disclosed by Figure 5.7 [pages 79-80] and teaches that to generate an optimal solution (using the algorithm disclosed by Patrick), an exhaustive search would search through many possible assignments [page 79]. Patrick also teaches that workflows are represented as a partially ordered sequence of tasks that is coordinated by a set of events (page 31); in other words, from all possible task assignments (i.e., workflow), a specific (i.e., target) workflow is selected to assign tasks and privileges to agents. Chan teaches the step of creating a plurality of workflows (i.e., a set of possible workflows). Both Chan and Patrick are directed towards workflow development, and the combination would not destroy either reference or render the combination inoperable, as Chan and Patrick are directed towards different aspects of workflow development. The combination of Chan and Patrick would yield a system that would construct a set of possible workflows and to select one of said workflows that minimizes the exposure cost, thereby meeting the claimed limitation of "selecting a target workflow from [a] constructed set of possible workflows for which the exposure cost measure is calculated to be a minimum".

Applicant argues that any interpretation offered by the Communication must at least be consistent with the claims. Specifically, Applicant asserts that Muehlen describes the "cheapest/fastest/most effective resource that satisfies certain qualification criteria" whereas the claimed invention recites "selecting a target workflow

from the constructed set of possible workflows for which the exposure cost measure is calculated to be a minimum”.

In response to applicant's argument that Muehlne's cheapest/fastest/most effective analysis is inconsistent with the claimed invention that suggests that exposure measure should be reduced with possible increases in resource usage and reduced speed, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Further, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., reducing exposure measure with possible increases in resource usage and reduced speed) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that it is improper to offer an interpretation of the claims that is inconsistent with Applicants' claims and the teachings of the Specification.

The Examiner respectfully agrees and asserts that no improper interpretations of the claims have been made in the instant application. As per MPEP 2111, claims must be "given their broadest reasonable interpretation consistent with the specification".

MPEP 2111 further states:

"The court explained that "reading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, is a quite different thing from 'reading limitations of the specification into a claim,' to thereby narrow the scope of the claim by implicitly adding disclosed limitations which have no express basis in the claim." The court found that applicant was advocating the latter, i.e., the impermissible importation of subject matter from the specification into the claim.). See also *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997) (The court held that the PTO is not required, in the course of prosecution, to interpret claims in applications in the same manner as a court would interpret claims in an infringement suit. Rather, the "PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant's specification.").

The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach."

Thus, the Examiner asserts that the broadest reasonable interpretation of the claims have been made in light of the specification.

Official Notice

6. Applicant has attempted to challenge the Examiner's taking of Official Notice in the Office Action mailed June 9, 2008. There are minimum requirements for a challenge to Official Notice:

(a) In general, a challenge, to be proper, must contain adequate information or arguments so that *on its face* it creates a reasonable doubt regarding the circumstances justifying the Official Notice

(b) Applicants must seasonably traverse (challenge) the taking of Official Notice as soon as practicable, meaning the next response following an Office Action. If an applicant fails to seasonably traverse the Official Notice during examination, his right to challenge the Official Notice is waived.

Applicant has not provided adequate information or arguments so that *on its face* it creates a reasonable doubt regarding the circumstances justifying the Official Notice. Therefore, the presentation of a reference to substantiate the Official Notice is not deemed necessary. The Examiner's taking of Official Notice has been maintained.

Bald statements such as, "the Examiner has not provided proof that this element is well known" or "applicant disagrees with the Examiner's taking of Official Notice and hereby requests evidence in support thereof", are not adequate and do not shift the burden to the Examiner to provide evidence in support of the Official Notice.

Regardless, the Examiner submits, as evidence, Michael zur Muehlen's "Workflow-based Process Controlling – Or: What You Can Measure You Can Control" (previously provided as reference 1-U in the Office Action mailed December 9, 2008) in support of the assertion that "using quantifiable methods to measure data describing the

state or performance of a system or process, such as length, duration, or amount of an event or output, or a combination of multiple descriptive measures, is old and well known in the art.” Muehlen teaches that workflow monitoring can also be divided into technical and organizational monitoring and can be used for performance measurement (e.g., response time, system load, etc.), and organizational monitoring measures the organizational efficiency (e.g., idle times, workload analysis, etc.) [page 62]. Muehlen also discusses that process monitoring is useful to measure the value of the IT investment necessary to improve the processes, and that the effects related to a workflow management system can be distinguished in monetary and non-monetary effects, including reduced processing times (personnel cost), reduced transport times (personnel and resource cost), and reduced storage costs (for paper archives) [page 65]. Muehlen also discusses uses information from the workflow audit trail and the timestamp of the activation, execution and completion or abortion of workflow activities to compute process cycle times, lay- and idle-times as well as activity processing times and their deviations [pages 66 and 70]. Muehlen also discusses measuring the quality in terms of describing the efficiency of a resource, or the total output, measuring the effectiveness of a resource, and states that the cost, time and quality indicators of resources can be used within the role-based staff resolution, and that in this way, an activity may request the cheapest/fastest/most effective resource that satisfies certain qualification criteria [page 72]. Thus, the Examiner asserts that Muehlen discloses a plurality of examples in support of the Official Notice that “using quantifiable methods to measure data describing the state or performance of a system or process, such as

length, duration, or amount of an event or output, or a combination of multiple descriptive measures, is old and well known in the art.”

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Subject matter critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The claimed invention recites in claims 1, 6, and 7 that the exposure cost measure is “based upon, in part, details of critical information...” [emphasis added]. However, the specification merely mentions that “the exposure measure may be calculated based upon the amount of information that is exposed, or the duration for which that information is exposed, or a combination of both” [page 2, lines 27-29]. The specification does not discuss the possible consideration of factors other than the amount and/or duration of information exposure. The specification only contemplates the use of these measures. Thus, the use of other considerations other than the amount and duration of information exposure would not be enabled by the specification; therefore, one of ordinary skill in the art would not be enabled to make, practice or use the claimed invention without undue experimentation.

Furthermore, assuming that other considerations beyond the temporarily stored critical information were enabled, the specification does not specify how these additional considerations would be combined with said temporarily stored critical information in order to calculate an exposure cost. For example, would the calculation be based on an equal or weighted combination of factors? How would the considerations be combined to yield an exposure cost measure? The metes and bounds of the basis of the calculation of an exposure cost measure is therefore unclear because the specification does not provide adequate written disclosure to enable an artisan of ordinary skill in the art to make and/or use the invention as intended by the Applicant since the invention could be utilized differently by each human user in light of differences in subjectivity among humans.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed invention recites in claims 1, 6, and 7 that the exposure cost measure is "based upon, *in part*, details of critical information..." [emphasis added]. However, it is unclear how other considerations other than the amount and duration of

information exposure would be used in the calculation of an exposure cost measure. For example, would the calculation be based on an equal or weighted combination of factors? How would the considerations be combined to yield an exposure cost measure? The specification does not specify how other considerations affect the calculation of the exposure cost measure and is therefore indefinite.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. (US Patent #6,889,375) in view of Hung Chak Kuen Patrick's "Secure Workflow Model" (published April 2001 and previously provided as reference 1-V, hereinafter referred to as Patrick) and further in view of Michael zur Muehlen's "Workflow-based Process Controlling – Or: What You Can Measure You Can Control" (previously provided as reference 1-U, hereinafter referred to as Muehlen).

As per claim 1, Chan et al. teaches a machine-implemented method for selecting a workflow, said method comprising the steps of:

(a) a computer constructing a set of possible workflows meeting a workflow specification having a predetermined input and a required output, using components

having defined inputs and outputs (**A display 148 presents icons representing workflows 108 and workflow steps 109 in an editor window 150, enabling a user to easily create and edit workflows 108. Contracts 102a specify interactions between design-time container 110 and workflows 108 and workflow steps 109 typically by describing service that design-time container is to provide to workflow steps 109. For example, a contract 102a specifies that design-time container 110 is to retrieve workflow steps 109 for workflow 108 by associating workflow 108 with the retrieval of workflow steps 109. Another contract 102a specifies that design-time container 110 is to retrieve input data from a user for workflow step 109 by associating workflow step 109 with the retrieval of input data.....Application server 128 includes a workflow repository 132, a workflow administrator 130, and run-time container 112. Workflow repository 132 stores workflows 108 and contracts 102c associated with the workflows. Contracts 102c specify interactions between workflows 108 and workflow steps 109. For example, a workflow step 109 is designed to retrieve a file and includes a file name variable. An instantiation of workflow 108, called a task, supplies the file name value to be used for the file name variable. A contract 102 specifies the file by associating the file name variable of workflow step 109 and the file name value of the task**) [Column 3, lines 28-39, 45-55];

Although not explicitly taught by Chan et al., Patrick teaches the steps of:

(b) a computer calculating a exposure measure for each of the possible workflows in the set of possible workflows (**Security Risk Factor - the maximum number of tasks done by any one agent. Essentially, the SRF measure the level of risk associated with a set of agents executing a group of inter-dependent tasks; Security Risk Factor...is based on evenly distributing the tasks over a set of agents with the condition that all the agents are capable of executing all the tasks and all of them can access the documents with the different privileges needed by each task.... We introduce the concept of Security Risk Value and incorporate it into SRF. SRV is a value from 0 to 1.0 that indicates the level of risk. The higher the value, the higher is the risk**) [pages 73, 79, 96]; and

(c) a computer selecting a target workflow from the constructed set of possible workflows for which the exposure measure is calculated to be a minimum (**When statically assigning tasks (and the associated privileges) to agents, the principle of least privilege dictates that each agent should be granted as few privileges as possible, under the constraint that all tasks can be done; for any given task, the set of agents who are capable of performing that task is given. From this information, it is possible to derive a feasible assignment of agents to tasks. This assignment can cater to many goals, such as guaranteed completion of all tasks, and minimizing SRF.... There are many possible assignments of agents to tasks. In particular, we want to make the assignment of agents to tasks in such a way that we minimize the SRF... the algorithm in Figure 5.7 approximates the minimization of SRF**) {from the plurality of possible agent-task

assignments, the assignment that minimizes the SRF is "selected"} [Pages 73, 77-80].

Chan et al. is directed towards creating and developing workflows based on contracts that specify the relationship between workflows and workflow steps (i.e., workflow specification), whereas Patrick is directed towards considering access control security in providing the development of secure workflow. Thus, both Chan et al. and Patrick are deemed to be related towards different aspects of workflow development. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Chan et al. to include the steps of calculating the exposure measure of each workflow and selecting the workflow with the smallest (minimum) exposure measure, as taught by Patrick, because doing so enhances the teachings of Chan et al. by integrating the concept of least privilege, granting only those privileges that are necessary to accomplish the task at hand, in order to provide the resultant high degree of security, facilitate hamper-free execution of workflows, and provide mechanisms to design systems that meet user's requirements for maintaining a high degree of security while getting workflows executed, as taught by Patrick [pages 66-67].

The combined teachings of Chan et al. and Patrick do not explicitly teach an exposure cost measure being based upon, in part, details of critical information that is temporarily stored between processing steps within each of said possible workflows.

However, Muehlen teaches the step of measuring the cost of a workflow based on performance measurement (e.g., response time, system load, etc.) and organizational efficiency (e.g., idle times, workload analysis, etc.) [page 62], and measuring the value of processes, including reduced processing times (personnel cost) and reduced storage costs [page 65]. Muehlen also teaches using the timestamp of state-changes regarding processes and activities of a workflow to compute process cycle times, lay- and idle-times (i.e., unused or "temporarily stored" resources) as well as activity processing times and their deviations [pages 66 and 70]. Muehlen teaches that typical cost criteria would be the costs for the handling of an object [page 72].

Muehlen is directed towards providing measures to evaluate workflow-based processes, whereas Chan et al. is directed towards creating and developing workflows based on contracts that specify the relationship between workflows and workflow steps (i.e., workflow specification), and Patrick is directed towards considering access control security in providing the development of secure workflow. Thus, Chan et al., Patrick and Muehlen are deemed to be related towards different aspects of workflow development, and therefore, analogous. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined teachings of Chan et al. and Patrick to calculate the exposure cost of a workflow using the information that is temporarily stored between processing steps, because doing so would enable the

selection of the cheapest/fastest/most effective resource that satisfies certain qualification criteria, as taught by Muehlen [page 72].

As per claim 2, Chan et al. teaches the method as claimed in claim 1, further comprising the step of said computer storing a library of components from which possible workflows can be constructed **(The display may include a palette of workflow steps 109 that may be selected to build or edit a workflow 108 by, for example, a drag-and-drop operation. Design-time container 110 retrieves workflow steps 109 from workflow library 111 and inserts them into workflow 108 as a user designs workflow 108; Palette window 156 provides a list of the workflow steps 109 available for designing workflows 108. Workflow steps 109 may be placed in folders to organize the steps 109)** [Column 3, lines 21-27, Column 6, lines 14-22].

As per claim 3, although not explicitly taught by Chan et al., Patrick teaches the method as claimed in claim 1, further comprising the step of said computer defining said exposure cost measure to be representative of an amount of information that a constructed workflow exposes **(We define Security Risk Factor to be the maximum number of tasks done by any one agent)** [Page 73].

Chan et al. is directed towards creating and developing workflows based on contracts that specify the relationship between workflows and workflow steps (i.e.,

workflow specification), whereas Patrick is directed towards considering access control security in providing the development of secure workflow. Thus, both Chan et al. and Patrick are deemed to be related towards different aspects of workflow development. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Chan et al. to include the steps of calculating the exposure measure of each workflow and selecting the workflow with the smallest (minimum) exposure measure, as taught by Patrick, because doing so enhances the teachings of Chan et al. by integrating the concept of least privilege, granting only those privileges that are necessary to accomplish the task at hand, in order to provide the resultant high degree of security, facilitate hamper-free execution of workflows, and provide mechanisms to design systems that meet user's requirements for maintaining a high degree of security while getting workflows executed, as taught by Patrick [pages 66-67].

As per claim 4, Chan et al. does not explicitly teach the method as claimed in claim 1, further comprising the step of said computer defining said exposure cost measure to be representative of a duration for which a constructed workflow exposes information.

Patrick discusses the concept of least privilege, where users are given access privileges only long enough to perform the task assigned to them (**ideally, the agent would be allowed to write d only when he is actively engaged in task t. In the**

workflow, the agent who is assigned to the task dynamically (i.e., at runtime) is granted the least privileges to the documents required for the execution of the task. Therefore, the agent can access those required documents during the execution of the task. These privileges are then revoked from the agent after it has finished performing the task [Pages 81-82], and provides quantifiable measures regarding the exposure of a workflow **(We define Security Risk Factor to be the maximum number of tasks done by any one agent)** [Page 73], but does not explicitly teach the step of defining an exposure measure as representative of a duration for which a constructed workflow exposes information.

However, Official Notice is taken that using quantifiable methods to measure data describing the state or performance of a system or process, such as length, duration, or amount of an event or output, is old and well known in the art. For example, Muehlen teaches the use of quantifiable measures to monitor workflow processes, including processing, transport, idle and cycle times (i.e., a duration of time for the process) [pages 65, 66, 70].

Muehlen is directed towards providing measures to evaluate workflow-based processes, whereas Chan et al. is directed towards creating and developing workflows based on contracts that specify the relationship between workflows and workflow steps (i.e., workflow specification), and Patrick is directed towards considering access control security in providing the development of secure workflow. Thus, Chan et al., Patrick and

Muehlen are deemed to be related towards different aspects of workflow development, and therefore, analogous. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Chan et al. to define an exposure measure of each workflow as representative of a duration for which a workflow exposes information, because doing so enhances the teachings of the concept of least privilege, as taught by Patrick, by providing a quantifiable measure that allows a quantifiable comparison of exposure duration for benchmarking and establishing maximum thresholds as a basis for redesigning workflow to become more secure and abide by the principle of least privilege taught by Patrick, and further enables organizations to focus their risk management efforts strategically by quantifying and demonstrating improvement and enhanced security of workflows, and tracking performance over time, and further because doing so would enable the selection of the cheapest/fastest/most effective resource that satisfies certain qualification criteria, as taught by Muehlen [page 72].

Further, one of ordinary skill in the art would have recognized that applying the known technique of applying quantitative measures to the teachings of Chan et al. and Patrick would have yielded predictable results because the level of ordinary skill in the art demonstrated by the references applied shows the ability to incorporate quantitative measures describing the exposure "measure". Further, applying a quantitative measure to measure the length or duration of time information is exposed would have been recognized by those of ordinary skill in the art as resulting in an improved system that

would allow more quantifiable comparison of exposure duration for benchmarking and establishing of maximum thresholds as a basis for redesigning workflow to become more secure and abide by the principle of least privilege taught by Patrick, enabling organizations to focus their risk management efforts strategically by quantifying and demonstrating improvement and enhanced security of workflows, and tracking performance over time.

As per claim 5, although not explicitly taught by Chan et al., Patrick teaches the method as claimed in claim 1, further comprising the step of said computer defining said exposure cost measure to be representative of an amount of information that a constructed workflow exposes **(We define Security Risk Factor to be the maximum number of tasks done by any one agent)** [Page 73].

Chan et al. is directed towards creating and developing workflows based on contracts that specify the relationship between workflows and workflow steps (i.e., workflow specification), whereas Patrick is directed towards considering access control security in providing the development of secure workflow. Thus, both Chan et al. and Patrick are deemed to be related towards different aspects of workflow development. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Chan et al. to include the steps of calculating the exposure measure of each workflow and selecting the workflow with the smallest (minimum) exposure measure, as taught by Patrick, because doing so enhances the

teachings of Chan et al. by integrating the concept of least privilege, granting only those privileges that are necessary to accomplish the task at hand, in order to provide the resultant high degree of security, facilitate hamper-free execution of workflows, and provide mechanisms to design systems that meet user's requirements for maintaining a high degree of security while getting workflows executed, as taught by Patrick [pages 66-67].

Patrick discusses the concept of least privilege, where users are given access privileges only long enough to perform the task assigned to them (**ideally, the agent would be allowed to write d only when he is actively engaged in task t. In the workflow, the agent who is assigned to the task dynamically (i.e., at runtime) is granted the least privileges to the documents required for the execution of the task. Therefore, the agent can access those required documents during the execution of the task. These privileges are then revoked from the agent after it has finished performing the task**) [Pages 81-82], and provides quantifiable measures regarding the exposure of a workflow (**We define Security Risk Factor to be the maximum number of tasks done by any one agent**) [Page 73], but does not explicitly teach the step of defining an exposure measure as representative of a duration and amount for which information is exposed for a constructed workflow.

However, Official Notice is taken that using quantifiable methods to measure data describing the state or performance of a system or process, such as length,

duration, or amount of an event or output, or a combination of multiple descriptive measures, is old and well known in the art. For example, Muehlen teaches the use of quantifiable measures to monitor workflow processes, including processing, transport, idle and cycle times (i.e., a duration of time for the process) [pages 65, 66, 70], and further teaches that workflow monitoring can comprise a combination of both technical and organizational monitoring, wherein technical monitoring is used for performance measurement (e.g., response time, system load, etc.) and organizational monitoring measures the organizational efficiency (e.g., idle times, workload analysis, etc.) [page 62].

Muehlen is directed towards providing measures to evaluate workflow-based processes, whereas Chan et al. is directed towards creating and developing workflows based on contracts that specify the relationship between workflows and workflow steps (i.e., workflow specification), and Patrick is directed towards considering access control security in providing the development of secure workflow. Thus, Chan et al., Patrick and Muehlen are deemed to be related towards different aspects of workflow development, and therefore, analogous. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Chan et al. to define an exposure measure of each workflow as representative of a duration for which a workflow exposes information, because doing so enhances the teachings of the concept of least privilege, as taught by Patrick, by providing a quantifiable measure that allows a quantifiable comparison of exposure duration for benchmarking and establishing

maximum thresholds as a basis for redesigning workflow to become more secure and abide by the principle of least privilege taught by Patrick, and further enables organizations to focus their risk management efforts strategically by quantifying and demonstrating improvement and enhanced security of workflows, and tracking performance over time, and further because doing so would enable the selection of the cheapest/fastest/most effective resource that satisfies certain qualification criteria, as taught by Muehlen [page 72].

Further, one of ordinary skill in the art would have recognized that applying the known technique of applying quantitative measures to the teachings of Chan et al. and Patrick would have yielded predictable results because the level of ordinary skill in the art demonstrated by the references applied shows the ability to incorporate quantitative measures describing the exposure "measure". Further, applying a quantitative measure to measure the length or duration of time information is exposed would have been recognized by those of ordinary skill in the art as resulting in an improved system that would allow more quantifiable comparison of exposure duration for benchmarking and establishing of maximum thresholds as a basis for redesigning workflow to become more secure and abide by the principle of least privilege taught by Patrick, enabling organizations to focus their risk management efforts strategically by quantifying and demonstrating improvement and enhanced security of workflows, and tracking performance over time.

Claim 6 recites limitations already addressed by the rejection of claim 1 above; therefore, the same rejection applies.

Further, the teachings of Chan et al. are embodied as a computer-based system, evidenced by its use within a communications network **(telecommunications device 120 communicates with system 104 through a communications network 122 such as a local, wide, or global area network, a private branch exchange, a public switched telephone network, wired and/or wireless communication links, and/or any combination of the previously mentioned communication links)** and use of software comprising instructions executable by a computer system, evidenced by the use of Java-based programming **(Microsoft Windows Foundation Class or Java Foundation Class may be used by design-time container 110)** and other computing-based structures **(run-time container, design time container)** [Column 2, lines 37-47, Column 3, lines 20-21, claim 1].

Claim 7 recites limitations already addressed by the rejection of claim 1 above; therefore, the same rejection applies.

Further, the teachings of Chan et al. are embodied within application development software embodied in a computer-readable medium [Claim 15].

Claim 8 recites limitations already addressed by the rejection of claim 2 above; therefore, the same rejection applies.

Claim 9 recites limitations already addressed by the rejection of claim 3 above; therefore, the same rejection applies.

Claim 10 recites limitations already addressed by the rejection of claim 4 above; therefore, the same rejection applies.

Claim 11 recites limitations already addressed by the rejection of claim 5 above; therefore, the same rejection applies.

Claim 12 recites limitations already addressed by the rejection of claim 2 above; therefore, the same rejection applies.

Claim 13 recites limitations already addressed by the rejection of claim 3 above; therefore, the same rejection applies.

Claim 14 recites limitations already addressed by the rejection of claim 4 above; therefore, the same rejection applies.

Claim 15 recites limitations already addressed by the rejection of claim 5 above; therefore, the same rejection applies.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Emberton et al. (US Patent #6,349,320) teaches a computer executable workflow management and control system. An amount of unused entries in an ordered list is determined and compared to a predetermined threshold

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER CHOI whose telephone number is (571)272-6971. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on (571) 272-6737. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 2, 2009

/P. C./
Examiner, Art Unit 3623
/Jonathan G. Sterrett/
Primary Examiner, Art Unit 3623